ATENT COOPERATION TRE, . TY

	From the INTERNATIONAL BUREAU		
PCT	To:		
NOTIFICATION OF ELECTION (PCT Rule 61.2)	Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231 ÉTATS-UNIS D'AMÉRIQUE		
Date of mailing (day/month/year) 11 November 1999 (11.11.99)	in its capacity as elected Office		
International application No. PCT/CA99/00293	Applicant's or agent's file reference O8-869947WO		
International filing date (day/month/year) 13 April 1999 (13.04.99)	Priority date (day/month/year) 13 April 1998 (13.04.98)		
Applicant MIKI, Brian et al			
in a notice effecting later election filed with the Inter 2. The election X was was not made before the expiration of 19 months from the priority Rule 32.2(b).	ry Examining Authority on: r 1999 (24.09.99) rnational Bureau on:		
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	S. Mafla		
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38		

HATENT COOPERATION TREATY

	From t	From the INTERNATIONAL BUREAU			
PCT	To:				
NOTIFICATION OF THE RECORDING	SEC				
OF A CHANGE		HLEY, Konrad, A. /ling Lafleur Hendersor	~ I I D		
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(PCT Rule 92bis.1 and	160	Elgin Street			
Administrative Instructions, Section 422)		Ottawa, Ontario K1P 1C3			
Date of mailing (day/month/year)	T CAN	IADA			
21 August 2000 (21.08.00)					
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Applicant's or agent's file reference O8-869947WO		IMPORTANT NOTI	FICATION		
International application No.		onal filing date (day/month/ye	ear)		
PCT/CA99/00293	13 A	April 1999 (13.04.99)			
The following indications appeared on record concerning:					
	X the ager	the commo	on representative		
	A line ago.				
Name and Address		State of Nationality	State of Residence		
SECHLEY, Konrad, A. Gowling, Strathy & Henderson	i				
Suite 2600		Telephone No.			
160 Elgin Street Ottawa, Ontario K1P 1C3		613 233 1781			
Canada	I	Facsimile No.			
	I	613 563 9869			
	I	Teleprinter No.			
2. The International Bureau hereby notifies the applicant that the	Ī				
the person the name X the add	iress [the nationality	the residence		
Name and Address		State of Nationality	State of Residence		
SECHLEY, Konrad, A.	1				
Gowling Lafleur Henderson LLP Suite 2600	ļ	Telephone No.			
160 Elgin Street	1	613 233 1781			
Ottawa, Ontario K1P 1C3 Canada	1	Facsimile No.			
	1	613 563 9869			
		Teleprinter No.			
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:					
X the receiving Office		the designated Offices of	concerned		
the International Searching Authority	Ī	The elected Offices cond	cerned		
X the International Preliminary Examining Authority	Ť	other:			
The International Bureau of WIPO	Authorized	officer			
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1211 Geneva 20, Switzerland			1		
Facsimile No.: (41-22) 740.14.35	Telephone !	No.: (41-22) 338.83.38			

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PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Articl 18 and Rules 43 and 44)

Applicant's or agent's file reference 08-869947W0		of Transmittal of International Search Report 220) as well as, where applicable, item 5 below.
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)
PCT/CA 99/00293	13/04/1999	13/04/1998
Applicant HER MAJESTY IN RIGHT OF C	ANADA as represented by T	
This International Search Report has bee according to Article 18. A copy is being tr	n prepared by this International Searching Aut ansmitted to the International Bureau.	hority and is transmitted to the applicant
	of a total of <u>6</u> sheets. va copy of each prior art document cited in this	report.
	international search was carried out on the ba less otherwise indicated under this item.	sis of the international application in the
the international search v	vas carried out on the basis of a translation of t	he international application furnished to this
b. With regard to any nucleotide ar was carried out on the basis of th X contained in the internation of th	nd/or amino acid sequence disclosed in the ir e sequence listing: onal application in written form. ernational application in computer readable for o this Authority in written form.	nternational application, the international search
international application a	bsequently furnished written sequence listing of as filed has been furnished. ormation recorded in computer readable form i	does not go beyond the disclosure in the
Certain claims were four Unity of invention is lace.	ind unsearchable (See Box I). king (see Box II).	,
4. With regard to the title,		
the text is approved as su the text has been establis	ubmitted by the applicant. shed by this Authority to read as follows:	
5. With regard to the abstract, X the text is approved as su the text has been establis within one month from the	abmitted by the applicant. Shed, according to Rule 38.2(b), by this Authori Be date of mailing of this international search rep	ty as it appears in Box III. The applicant may, port, submit comments to this Authority.
6. The figure of the drawings to be pub		None of the figures.
as suggested by the appl because the applicant fai	led to suggest a figure.	INDIE OF THE HYDRES.
because this figure better	characterizes the invention.	

International application No. PCT/CA 99/00293

INTERNATIONAL SEARCH REPORT

B x I Obs rvations where c rtain claims w r f und unsearchable (Continuati n fitem 1 f first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
B x II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. X As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 10,20,31 and 32 all completely, and 1,2,5,11,12,15, 21-30,37-40

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEO ID NO:7

2. Claims: 33 and 34 both completely, and 1,2,4,5,11,12,14,15, 16,18,21-30,37-40

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEO ID NO:8

3. Claims: 9,35 and 36 all completely, and 1,2,3,11.12,13, 21-30,37-40 all partially

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEO ID NO:9

4. Claims: 1,2,4,5,11,12,14,15,21-30 all partially

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented by sequences derived from SEQ ID NO:5

5. Claims: 6 and 16 both completely, and 1,11, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in endothelium cells of the seed coat, endothelium promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

6. Claims: 7 and 17 both completely, and 1,2,5,11,12,15, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in hourglass and outer integument cells of the seed coat, hourglass/outer integument promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors, as represented by SEQ ID NO:2.

7. Claims: 8 and 18 both completely, and 1,11, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in palisade cells of the seed coat, palisade promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors.

8. Claims: 1,11,22,23,24-30 all partially

Genomic DNA sequences differentially or preferentially expressed in the tobacco seed coat, tobacco seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented by SEQ ID NO:1

International Application No PCT/CA 99/00293

. CLASSIFICATION OF SUBJECT MATTER PC 6 C12N15/29 C12N15/82 A01H5/00 IPC 6 C12N5/10 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C12N A01H IPC 6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages 1 - 30CA 2 186 833 A (MINI OF AGRICULTURE AND Х AGRI F) 31 March 1998 (1998-03-31) the whole document 1-30 CA 2 211 018 A (CANADA MAJESTY IN RIGHT X OF) 30 March 1998 (1998-03-30) the whole document WO 97 15656 A (INDIANA CROP IMPROVEMENT 1 - 30X ASS) 1 May 1997 (1997-05-01) the whole document CA 2 149 000 A (FOBERT PIERRE : MIKI BRIAN 1 - 30Χ (CA); IYER VENKATRAN N (CA)) 10 November 1996 (1996-11-10) the whole document -/--Further documents are listed in the continuation of box C. Patent family members are listed in annex. Χ Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date annot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docucitation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 0 9. 11. 99 14 October 1999 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3016 MADDOX, A

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International Application No
PCT/CA 99/00293

ation) DOCUMENTS CONSIDERED TO BE RELEVANT	Polovent to alaim No
Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
FOBERT P R ET AL: "T-DNA TAGGING OF A SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document	1-30
WO 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84	1-23, 25-30
COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document	1-23, 25-30
ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document	10,32,33
SABALA, I.: "Norway spruce mRNA for antifreeze-like protein (af70), comploet cds." EMBL ACCESSION NO:D86598, 10 August 1996 (1996-08-10), XP002118846 the whole document	1-40
RHODES, P.R., ET AL.: "Soybean seed lectin gene transposable element tgm1" EMBL ACCESSION NO:K02837, 2 July 1996 (1996-07-02), XP002118847 the whole document	1-40
	FOBERT P R ET AL: "T-DNA TAGGING OF A SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document W0 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84 COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document SABALA, I.: "Norway spruce mRNA for antifreeze-like protein (af70), comploet cds." EMBL ACCESSION NO:D86598, 10 August 1996 (1996-08-10), XP002118846 the whole document RHODES, P.R., ET AL.: "Soybean seed lectin gene transposable element tgm1" EMBL ACCESSION NO:K02837, 2 July 1996 (1996-07-02), XP002118847

Information on patent family members

International Application No PCT/CA 99/00293

	ent document in search report		Publication date		atent family nember(s)	Publication date
CA	2186833	Α	31-03-1998	CA	2211018 A	30-03-1998
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WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶: C12N 15/29, 15/82, 5/10, A01H 5/00

A3

(11) International Publication Number:

WO 99/53067

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(22) International Filing Date:

13 April 1999 (13.04.99)

(30) Priority Data:

09/059,090

13 April 1998 (13.04.98)

US

(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application

US Filed on 09/059,090 (CIP) 13 April 1998 (13.04.98)

(71) Applicant (for all designated States except US): HER MAJESTY IN RIGHT OF CANADA as represented by THE MINISTER OF AGRICULTURE AND AGRI-FOOD CANADA [CA/CA]; Eastern Cereal & Oilseed Research Centre, K.W. Neatby Building, Ottawa, Ontario K1A OC6 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MIKI, Brian [CA/CA]; 1876 Dorset Drive, Ottawa, Ontario K1H 5V1 (CA). GI-JZEN, Mark [CA/CA]; 848 Princess Avenue, London, Ontario N5W 3M4 (CA). MILLER, Shea [CA/CA]; 69 Kenilworth Street, Ottawa, Ontario K1Y 3Y5 (CA). BOW- MAN, Lu-Ann [CA/CA]; R.R. #3, Listowel, Ontario N4W 3G8 (CA). BATCHELOR, Anthea [GB/CA]; 45 Alexander Street, Ottawa, Ontario K1M 1N1 (CA). HU, Ming [CA/CA]; 279 Kundson Drive, Kanata, Ontario K2K 2N8 (CA). BOUTILIER, Kim [CA/NL]; Groen van Prinsterstraat 87, NL-6702 CP Wageningen (NL).

- (74) Agents: SECHLEY, Konrad, A. et al.; Gowling, Strathy & Henderson, Suite 2600, 160 Elgin Street, Ottawa, Ontario K1P 1C3 (CA).
- (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With a revised version of the international search report.

- (88) Date of publication of the international search report:
 9 December 1999 (09.12.99)
- (88) Date of publication of the revised version of the international search report: 20 January 2000 (20.01.00)

(54) Title: SEED-COAT PROMOTERS, GENES AND GENE PRODUCTS

(57) Abstract

The present invention is directed to isolated genomic sequences that are differentially expressed within seed—coat tissues. These DNAs are expressed within the inner integument, thick, or thin, walled parenchyma, endothelium, palisade, hourglass, or stellate parenchyma cells of the seed—coat. Furthermore, this invention relates to promoter regions obtained from genomic sequences that are differentially expressed in seed—coat tissues, and their use for directing seed—coat specific expression of genes of interest within transformed plant cells or plants. Exemplified promoters include those obtained from the differential screening of a seed—coat library and cryptic promoters obtained using T-DNA tagging using a promoterless marker gene.

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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LK LR

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REVISED VERSION

	INTERNATIONAL SEARC	CH REPORT	Internonal Application No			
A CLASS	SIFICATION OF SUBJECT MATTER		PCT/CA 99/00293			
ÎPC 6	C12N15/29 C12N15/82 C12N5/	/10 A01H5/0	00			
According	to International Patent Classification (IPC) or to both national class					
B. FIELDS	SEARCHED					
Minimum d	ocumentation searched (classification system followed by classific	Cation symbols)				
IPC 6	CIZN AUTH					
	ation searched other than minimum documentation to the extent the					
Electronio d	data base consulted during the international search (name of data	base and, where practical,	, search terms used)			
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT					
Category °	Citation of document, with indication, where appropriate, of the					
	7,7,7,7,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	relevant passages	Relevant to claim No.			
Х	CA 2 186 833 A (MINI OF AGRICUL AGRI F) 31 March 1998 (1998-03- the whole document	TURE AND 31)	1-30			
Х	CA 2 211 018 A (CANADA MAJESTY IN RIGHT 0F) 30 March 1998 (1998-03-30) the whole document					
х	WO 97 15656 A (INDIANA CROP IMP ASS) 1 May 1997 (1997-05-01) the whole document	ROVEMENT	1-30			
x	CA 2 149 000 A (FOBERT PIERRE ; (CA); IYER VENKATRAN N (CA)) 10 November 1996 (1996-11-10) the whole document	MIKI BRIAN	1-30			
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X Furthe	er documents are listed in the continuation of box C.	X Patent family m	nembers are listed in annex.			
	agories of cited documents :	*T* later document public	of the state of th			
oonside "E" earlier do	A* document defining the general state of the art which is not considered to be of particular relevance E* earlier document but published on or after the international state of the art which is not considered to be of particular relevance T* later document published after the international state of the art which is not considered to be of particular relevance T* later document published after the international state of the art which is not considered to be of particular relevance To later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention					
"L" document	te t which may throw doubts on priority claim(s) or	Cannot be considere	ar relevance; the claimed invention ed novel or cannot be considered to			
which is citation (cried to establish the publication date of another or other special reason (as specified)	"Y" document of particula	step when the document is taken alone ar relevance: the claimed invention			
	nt referring to an oral disclosure, use, exhibition or	document is combin	ed to involve an inventive step when the need with one or more other such docu-			
P document later that	t published prior to the international filing date but in the priority date claimed	ments, such combin in the art. *&* document member of	nation being obvious to a person skilled			
Date of the ac	tual completion of the international search	Date of mailing of the	e international search report			
14	October 1999	0 9. 11.	99			
Name and ma	uiling address of the ISA European Patent Office, P.B. 5818 Patentiaan 2	Authorized officer	,			
	NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	MADDOX,	4			
	Fax. (131-10) 5-0-10	I INDUON,	A			

Form PCT/ISA/210 (second sheet) (July 1992)

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MADDOX, A

Inter onal Application No PCT/CA 99/00293

.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	PCT/CA 99/00293
ategory °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FOBERT P R ET AL: "T-DNA TAGGING OF A SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document	1-30
X	WO 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84	1-23, 25-30
X	COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document	1-23, 25-30
A	ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document	10,32,33
A	SABALA, I.: "Norway spruce mRNA for antifreeze-like protein (af70), comploet cds." EMBL ACCESSION NO:D86598, 10 August 1996 (1996-08-10), XP002118846 the whole document	1-40
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PCT/CA 99/00293

Box I	Observations where certain claims w refound unsear hable (Continuation of item 1 of first sheet)
This Inte	ernational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1.	Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2.	Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II	Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This Inter	rnational Searching Authority found multiple inventions in this international application, as follows:
	see additional sheet
1	As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. X	As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3	As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.	No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark o	The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 10,20,31 and 32 all completely, and 1,2,5,11,12,15, 21-30,37-40

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEQ ID NO:7

2. Claims: 33 and 34 both completely, and 1,2,4,5,11,12,14,15, 16,18,21-30,37-40

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEQ ID NO:8

3. Claims: 9,35 and 36 all completely, and 1,2,3,11.12,13, 21-30,37-40 all partially

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented in SEQ ID NO:9

4. Claims: 1,2,4,5,11,12,14,15,21-30 all partially

Genomic DNA sequences differentially or preferentially expressed in seed coat tissues, seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented by sequences derived from SEQ ID NO:5

5. Claims: 6 and 16 both completely, and 1,11, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in endothelium cells of the seed coat, endothelium promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

6. Claims: 7 and 17 both completely, and 1,2,5,11,12,15, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in hourglass and outer integument cells of the seed coat, hourglass/outer integument promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors, as represented by SEQ ID NO:2.

7. Claims: 8 and 18 both completely, and 1,11, 22-30 all partially

Genomic DNA sequences differentially or preferentially expressed in palisade cells of the seed coat, palisade promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors.

8. Claims: 1,11,22,23,24-30 all partially

Genomic DNA sequences differentially or preferentially expressed in the tobacco seed coat, tobacco seed coat promoters, vectors containing said promoters, plant cells and transgenic plants transformed with said promoters and vectors as represented by SEO ID NO:1

harmation on patent family members

Inten.. 3nal Application No PCT/CA 99/00293

Patent document					77,00233	
cited in search report		Publication date		Patent family member(s)	Publication date	
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WO 9109957	A	11-07-1991	AU AU CA DE EP IL US	639059 B 6974791 A 2071943 A 69033142 D 0506763 A 96768 A 5658772 A	15-07-1993 24-07-1991 23-06-1991 08-07-1999 07-10-1992 10-06-1997 19-08-1997	

PCI/CA 99/00293

A. CLASS	C12N15/29 C12N15/82 C12N5/10	A01H5/00			
	<u> </u>	ories and IDO			
	to International Patent Classification (IPC) or to both national classification	ation and IPC			
	S SEARCHED locumentation searched (classification system followed by classification)	on symbols)			
IPC 6		, , ,			
Document	ation searched other than minimum documentation to the extent that s	uch documents are included in the fields se	arched		
Electronic	data base consulted during the international search (name of data base	se and, where practical, search terms used			
C. DOCU	MENTS CONSIDERED TO BE RELEVANT				
Category 6		evant passages	Relevant to claim No.		
Х	CA 2 186 833 A (MINI OF AGRICULTU AGRI F) 31 March 1998 (1998-03-31 the whole document	JRE AND L)	1-30		
х	CA 2 211 018 A (CANADA MAJESTY IN OF) 30 March 1998 (1998-03-30) the whole document	N RIGHT	1-30		
Х	WO 97 15656 A (INDIANA CROP IMPROASS) 1 May 1997 (1997-05-01) the whole document	DVEMENT	1-30		
X	CA 2 149 000 A (FOBERT PIERRE ;M) (CA); IYER VENKATRAN N (CA)) 10 November 1996 (1996-11-10) the whole document	IKI BRIAN	1-30		
		-/- -			
X Fu	urther documents are listed in the continuation of box C.	X Patent family members are listed	in annex.		
° Special	categories of cited documents :	"T" later document published after the inte	emational filing date		
con	ment defining the general state of the art which is not sidered to be of particular relevance	or priority date and not in conflict with cited to understand the principle or th invention	the application but eory underlying the		
fiting	"E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone				
whi	ment which may throw doubts on priority claim(s) or ch is cited to establish the publication date of another tion or other special reason (as specified)	"Y" document of particular relevance; the cannot be considered to involve an in	claimed invention eventive step when the		
oth	ument reterring to an oral disclosure, use, exhibition or er means ument published prior to the international filing date but	document is combined with one or m ments, such combination being obvio in the art.	ous to a person skilled		
late	he actual completion of the international search	"&" document member of the same patent Date of mailing of the international se			
Date of the	14 October 1999	27/10/1999			
Name ar	nd mailing address of the ISA	Authorized officer			
	European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl,	Madday A			
	Fax: (+31-70) 340-3016	Maddox, A			

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PCI/CA 99/00293

Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
FOBERT P R ET AL: "T-DNA TAGGING OF A SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document	1-30
WO 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84	1-23, 25-30
COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document	1-23, 25-30
ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document	10,32,33
SABALA, I.: "Norway spruce mRNA for antifreeze-like protein (af70), comploet cds." EMBL ACCESSION NO:D86598, 10 August 1996 (1996-08-10), XP002118846 the whole document	1-40
RHODES, P.R., ET AL.: "Soybean seed lectin gene transposable element tgm1" EMBL ACCESSION NO:K02837, 2 July 1996 (1996-07-02), XP002118847 the whole document	1-40
	SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document W0 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84 COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document SABALA, I.: "Norway spruce mRNA for antifreeze-like protein (af70), comploet cds." EMBL ACCESSION NO:D86598, 10 August 1996 (1996-08-10), XP002118846 the whole document RHODES, P.R., ET AL.: "Soybean seed lectin gene transposable element tgm1" EMBL ACCESSION NO:K02837, 2 July 1996 (1996-07-02), XP002118847

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Internation No
PCI/CA 99/00293

Patent document cited in search report	:	Publication date		Patent family member(s)	Publication date
CA 2186833	A	31-03-1998	CA	2211018 A	30-03-1998
CA 2211018	Α	30-03-1998	CA	2186833 A	31-03-1998
WO 9715656	Α	01-05-1997	AU	7441996 A	15-05-1997
CA 2149000	Α	10-11-1996	us	5824863 A	20-10-1998
WO 9109957	Α	11-07-1991	AU AU CA DE EP IL US	639059 B 6974791 A 2071943 A 69033142 D 0506763 A 96768 A 5658772 A	15-07-1993 24-07-1991 23-06-1991 08-07-1999 07-10-1992 10-06-1997 19-08-1997

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PATENT COOPERATION TREATY

PCT

09/673333

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 08-869947W0	FOR FURTHER see Notification (Form PCT/ISA/2	of Transmittal of international Search Report 220) as well as, where applicable, Item 5 below.
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)
PCT/CA 99/00293	13/04/1999	13/04/1998
Applicant HER MAJESTY IN RIGHT OF CA		
according to Article 18. A copy is being train	•	hority and is transmitted to the applicant
	of a total of	report.
Basis of the report With regard to the language, the in language in which it was filed, unle	international search was carried out on the bar ess otherwise indicated under this item.	als of the international application in the
the International search wa Authority (Rule 23.1(b)).	as carried out on the basis of a translation of t	he international application furnished to this
b. With regard to any nucleotide and was carried out on the basis of the X contained in the internation filed together with the internation furnished subsequently to the statement that the subsinternational application as the statement that the inforfurnished Cortain claims were found	esequence listing: nal application in written form. mational application in computer readable form this Authority in written form. this Authority in computer readble form. sequently furnished written sequence listing desired has been furnished.	
3. Unity of invention is lacki	ing (see Box II).	
4. With regard to the title, The text is approved as sub the text has been establish	omitted by the applicant. ned by this Authority to read as follows:	
5. With regard to the abstract,		
the text is approved as sub- th text has been establish within one month from the o	omitted by the applicant. ed, according to Rul 38.2(b), by this Authorit date of mailing of this international search rep	ty as it appears in Box III. The applicant may, port, submit comments to this Authority.
6. The figure of the drawings to be publis	· ·	
as suggested by th applica		Non of the figures.
because the applicant falled because this figure better c	• • •	

International application No.

PCT/CA 99/00293

Box I	Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This Inte	emational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1.	Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2. 🗌	Claims Nos.: because they relate to parts of the international Application that do not comply with the prescribed requirements to such an extent that no meaningful international Search can be carried out, specifically:
a. 🗌	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box ii	Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
	rnational Searching Authority found multiple inventions in this international application, as follows:
1.	As all required additional search fees were timely paid by the applicant, this international Search Report covers all searchable claims.
2. X	As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. 🗌	As only some of the required additional search fees were timely paid by the applicant, this international Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.	No required additional search fees were timely paid by the applicant. Consequently, this international Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Romark	n Protest The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

International Application No PCT/CA 99/00293

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/29 C12N15/82 C12N5/10 A01H5/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) C12N A01H IPC 6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X CA 2 186 833 A (MINI OF AGRICULTURE AND 1 - 30AGRI F) 31 March 1998 (1998-03-31) the whole document X CA 2 211 018 A (CANADA MAJESTY IN RIGHT 1-30 0F) 30 March 1998 (1998-03-30) the whole document X WO 97 15656 A (INDIANA CROP IMPROVEMENT 1-30 ASS) 1 May 1997 (1997-05-01) the whole document X CA 2 149 000 A (FOBERT PIERRE ; MIKI BRIAN 1-30 (CA); IYER VENKATRAN N (CA)) 10 November 1996 (1996-11-10) the whole document -/--Further documents are listed in the continuation of box C. X Patent family members are listed in annex. Special categories of cited documents: "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance Invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the ctalmed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed in the art. "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 14 October 1999 27/10/1999 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijewijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3016 Maddox, A

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International Application No
PCT/CA 99/00293

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	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	·
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FOBERT P R ET AL: "T-DNA TAGGING OF A SEED COAT-SPECIFIC CRYPTIC PROMOTER IN TOBACCO" PLANT JOURNAL, vol. 6, no. 4, 1 January 1994 (1994-01-01), pages 567-577, XP002030412 ISSN: 0960-7412 the whole document	1-30
X	WO 91 09957 A (DU PONT) 11 July 1991 (1991-07-11) page 83 -page 84	1-23, 25-30
X	COLOMBO, L., ET AL.: "Downregulation of ovule-specific MADS box genes from petunia results in maternally controlled defects in seed development" THE PLANT CELL, vol. 9, no. 5, 1997, pages 703-715, XP002118567 the whole document	1-23, 25-30
A	ODANI, S., ET AL.: "Soybean hydrophobic protein. Isolation, partial characterization and the complete primary structure" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 162, no. 3, 1987, pages 485-491, XP002118845 cited in the application the whole document	10,32,33
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A	RHODES, P.R., ET AL.: "Soybean seed lectin gene transposable element tgm1" EMBL ACCESSION NO:K02837, 2 July 1996 (1996-07-02), XP002118847 the whole document	1-40

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International Application No PCT/CA 99/00293

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